WHAT IS CLAIMED IS:

1. An injection mold for applying a cover layer to golf balls, comprising

(a) upper and lower support plates each containing at least one hemispherical cavity, said upper and lower hemispherical cavities being adapted to mate to define at least one spherical cavity when said plates are brought together;

(b) a plurality of retractable core pins arranged in said lower support plates and extendable into each of said lower hemispherical cavities for supporting a core of a golf ball within said spherical cavity; and

(c) means for supplying fluid thermoplastic material to each of said cavities to form a cover on the golf ball core, said supplying means including a valve pin arranged in a gate in said upper plate in a center of said upper hemispherical cavity adjacent to a pole of the golf ball formed in said cavity, said valve pin being operable between a first position wherein said pin extends into said cavity to engage the core and to allow thermoplastic material to enter the cavity and surround the core, a second position wherein said pin is retracted into said upper support plate out of contact with the core to allow thermoplastic material to fill the cavity, and a third position between said first and second positions wherein said pin closes said gate to stop the supply of

thermoplastic material into said cavity.

2. An injection mold as defined in claim 1, and further comprising means for displacing said valve pin between said first, second, and third positions.

3. An injection mold as defined in claim 2, wherein said supplying means further comprises a heated manifold for maintaining said thermoplastic material in a fluid state for injection into said cavity.

4. An injection mold as defined in claim 2, wherein said valve pin has a contoured lower surface to form a dimple at the pole of the golf ball when said valve pin is in said third position.

5. An injection mold as defined in claim 1, wherein said retractable core pins are arranged laterally and equally spaced about said lower hemispherical cavity.

6. An injection mold as defined in claim 1, wherein said retractable core pins are equally spaced about said lower hemispherical cavity and have longitudinal axes arranged substantially perpendicular to parting lines defined where said cavities terminate at a surface of said plates.

7. An injection mold as defined in claim 1, and further comprising a vent pin arranged in an opening in said lower plate communicating with said cavity to vent air therefrom during supply of thermoplastic material.

8. A method for injection molding a cover layer on a golf ball, comprising the steps of

(a) supporting a golf ball core via retractable core pins within a spherical cavity defined by upper and lower hemispherical cavities arranged in mating upper and lower support plates;

(b) supplying fluid thermoplastic material to said cavity to form a cover on the golf ball core, said fluid thermoplastic material being supplied via a valve pin arranged in a gate in the upper plate in a center of the upper hemispherical cavity adjacent to a pole of the golf ball being formed in the cavity, the valve pin operating between a first position where the pin extends into the cavity to engage the core and to allow thermoplastic material to enter the cavity and surround the core, a second position where the pin is retracted into the upper support plate out of contact with the core to allow thermoplastic material to fill the cavity and a third position between the first and second positions wherein the pin closes the gate to stop the supply of thermoplastic material into the cavity.

9. A method as defined in claim 8, and further comprising the step of forming a pole dimple in the golf ball cover with the valve pin.

10. A method as defined in claim 8, and further comprising the step of venting air from the cavity as thermoplastic material is supplied thereto.